

What is claimed is:

1. A system comprising a two-dimensional
photographing device and a three-dimensional measuring
5 device that is removably attached to the two-dimensional
photographing device, the two-dimensional photographing
device and the three-dimensional measuring device
communicating with each other, wherein information
indicating an operating condition of one of the devices is
10 transmitted to the other device, which receives the
information and sets the own operating condition in
accordance with the received information for photographing
or measuring.

2. The system according to claim 1, wherein the
15 operating condition of the two-dimensional photographing
device includes at least one of a photographing area, a
photographing resolution, a focal distance, the number of
pixels and a magnification ratio, and the operating
condition of the three-dimensional measuring device
20 includes at least one of a measuring area, a measuring
resolution, an angle indicating the measuring area, and
the number of the measuring points.

3. A system comprising:
a two-dimensional photographing device including
25 a photographing portion for photographing the two-
dimensional image of a subject, and
a transmitting portion for transmitting information
indicating a photographing condition of the photographing
portion; and
30 a three-dimensional measuring device that is

removably attached to the two-dimensional photographing device, the three-dimensional measuring device including

a receiving portion for receiving information transmitted from the two-dimensional photographing device,

5 a setting portion for setting a measurement condition in accordance with the received information, and

a three-dimensional measuring portion for measuring a three-dimensional shape in accordance with the set measurement condition.

10 4. A system comprising:

a two-dimensional photographing device including

a photographing portion for photographing the two-dimensional image of a subject,

a calculating portion for calculating information
15 related to the measurement condition of the three-dimensional measuring device in accordance with the photographing condition of the photographing portion, and

a transmitting portion for transmitting the information calculated by the calculating portion; and

20 a three-dimensional measuring device that is removably attached to the two-dimensional photographing device, the three-dimensional measuring device including

a receiving portion for receiving information transmitted from the two-dimensional photographing device,

25 a setting portion for setting a measurement condition in accordance with the received information, and

a three-dimensional measuring portion for measuring a three-dimensional shape in accordance with the set measurement condition.

30 5. A system comprising:

a two-dimensional photographing device;

a three-dimensional measuring device that is removably attached to the two-dimensional photographing device, the three-dimensional measuring device including

5 a three-dimensional measuring portion for measuring a three-dimensional shape of a subject,

a transmitting portion for transmitting information of a measurement condition of the three-dimensional measuring portion; and

10 the two-dimensional photographing device including

a receiving portion for receiving the information transmitted from the three-dimensional measuring device,

a setting portion for setting a photographing condition in accordance with the received information, and

15 a photographing portion for acquiring a two-dimensional image of the subject in accordance with the set photographing condition.

6. A system comprising:

a two-dimensional photographing device;

20 a three-dimensional measuring device that is removably attached to the two-dimensional photographing device, the three-dimensional measuring device including

a three-dimensional measuring portion for measuring a three-dimensional shape of a subject,

25 a calculating portion for calculating information related to a photographing condition of the two-dimensional photographing device in accordance with a measurement condition of the three-dimensional measuring portion,

30 a transmitting portion for transmitting information

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calculated by the calculating portion; and

the two-dimensional photographing device including
a receiving portion for receiving the information
transmitted from the three-dimensional measuring device,

5 a setting portion for setting a photographing
condition in accordance with the received information, and
a photographing portion for photographing a two-
dimensional image of the subject in accordance with the
set photographing condition.

10 7. A system comprising:

a two-dimensional photographing device;

a three-dimensional measuring device that is
removably attached to the two-dimensional photographing
device, the three-dimensional measuring device including

15 a three-dimensional measuring portion for measuring a
three-dimensional shape of a subject,

a transmitting portion for transmitting information
indicating a measurement condition of the three-
dimensional measuring portion; and

20 a receiving portion for receiving the information
transmitted from the two-dimensional photographing device,

a setting portion for setting a measurement condition
in accordance with the received information when receiving
portion received the information transmitted from the two-
25 dimensional photographing device; and

the two-dimensional photographing device including
a photographing portion for photographing a two-
dimensional image of a subject,

a transmitting portion for transmitting information
30 indicating a photographing condition of the photographing

portion,

a receiving portion for receiving the information transmitted from the three-dimensional measuring device, and

5 a setting portion for setting a photographing condition in accordance with the received information when the receiving portion received the information transmitted from the three-dimensional measuring device.

8. The system according to claim 3, wherein the
10 information indicating the photographing condition is a photographing area and a photographing resolution of the photographing portion, and the information indicating the measurement condition is a measuring area and a measuring resolution of the three-dimensional measuring portion.

15 9. A two-dimensional photographing device to which a three-dimensional measuring device is removably attached, the two-dimensional photographing device comprising:

a photographing portion for photographing a two-dimensional image of a subject, and

20 a transmitting portion for transmitting information indicating a photographing condition of the photographing portion to the three-dimensional measuring device.

10. A two-dimensional photographing device to which a three-dimensional measuring device is removably
25 attached, the two-dimensional photographing device comprising:

a receiving portion for receiving information transmitted from the three-dimensional measuring device;

a setting portion for setting a photographing
30 condition in accordance with the received information; and

a photographing portion for photographing a two-dimensional image of the subject in accordance with the set photographing condition.

11. A three-dimensional measuring device that is
5 removably attached to a two-dimensional photographing device, the three-dimensional measuring device comprising:

a three-dimensional measuring portion for measuring a three-dimensional shape of a subject, and

a transmitting portion for transmitting information
10 indicating a measurement condition of the three-dimensional measuring portion.

12. A three-dimensional measuring device that is removably attached to a two-dimensional photographing device, the three-dimensional measuring device comprising:

15 a receiving portion for receiving information transmitted from the two-dimensional photographing device;
a setting portion for setting a measurement condition in accordance with the received information;

a three-dimensional measuring portion for measuring a
20 three-dimensional shape of the subject in accordance with the set measurement condition.

13. The system according to claim 3, wherein the two-dimensional photographing device and the three-dimensional measuring device are enclosed with housings
25 that are separated from each other and one of the housings is attached to the other to make one body.

14. A system comprising:

a two-dimensional photographing device for photographing a two-dimensional image of a subject;

30 a three-dimensional measuring device for measuring a

three-dimensional shape of the subject, having a variable measuring area;

5 a display portion for displaying the two-dimensional image photographed by the two-dimensional photographing device; and

a display controlling portion for displaying a measuring area of the three-dimensional measuring device in the display portion along with the two-dimensional image,

10 15. A system comprising:

a two-dimensional photographing device;

a three-dimensional measuring device;

15 a display portion for displaying the two-dimensional image photographed by the two-dimensional photographing device; and

a display controlling portion for displaying a distance image of the subject in accordance with the measurement result of the three-dimensional measuring device in the display portion along with the two-dimensional image.

20 16. A system comprising:

a two-dimensional photographing device;

a three-dimensional measuring device;

25 a display portion for displaying the two-dimensional image photographed by the two-dimensional photographing device;

a display controlling portion for displaying an area information for designating a measuring area of the three-dimensional measuring device in the display portion along with the two-dimensional image; and

a designating portion for designating the measuring area in accordance with the area information displayed in the display portion.

17. The system according to claim 14, wherein the
5 two-dimensional photographing device and the three-dimensional measuring device are removably attached to each other, and information regarding the measuring area or the measurement result of the three-dimensional measuring device is communicated between the two-
10 dimensional photographing device and the three-dimensional measuring device.

18. A two-dimensional photographing device to which a three-dimensional measuring device is removably attached, the two-dimensional photographing device
15 comprising:

a display portion for displaying a two-dimensional image of a subject; and

a display controlling portion for displaying a measuring area in accordance with the information
20 indicating a measuring area of the three-dimensional measuring device transmitted from the three-dimensional measuring device in the display portion along with the two-dimensional image.

19. A two-dimensional photographing device to which
25 a three-dimensional measuring device is removably attached, the two-dimensional photographing device comprising:

a display portion for displaying a two-dimensional image of a subject; and

30 a display controlling portion for displaying a

distance image of the subject in accordance with the measurement result transmitted from the three-dimensional measuring device in the display portion along with the two-dimensional image.

5 20. A two-dimensional photographing device to which a three-dimensional measuring device removably attached, the two-dimensional photographing device comprising:

 a display portion for displaying a two-dimensional image of a subject;

10 a display controlling portion for displaying an area information for designating a measuring area of the three-dimensional measuring device in the display portion along with the two-dimensional image;

 a designating portion for designating the measuring area in accordance with the area information displayed in the display portion; and

 a transmitting portion for transmitting a measuring area designated by the designating portion in the three-dimensional measuring device.

20 21. A system comprising:

 a two-dimensional photographing device;

 a three-dimensional measuring device that is removably attached to the two-dimensional photographing device, the three-dimensional measuring device including

25 a measuring portion for measuring a distance to a subject at least for one point,

 an outputting portion for outputting the measured distance information to the two-dimensional photographing device; and

30 the two-dimensional photographing device including

a photographing portion for photographing a two-dimensional image of the subject,

an optical system for forming a subject image in the photographing portion,

5 a receiving portion for receiving the measured distance information outputted from the three-dimensional measuring device, and

a controlling portion for controlling a focused state of the optical system in accordance with the measured
10 distance information received by the receiving portion.

22. A two-dimensional photographing device to which a three-dimensional measuring device is removably attached, the two-dimensional photographing device comprising:

15 a photographing portion for photographing a two-dimensional image of a subject;

an optical system for forming a subject image in the photographing portion;

a receiving portion for receiving measured distance
20 information from the three-dimensional measuring device; and

a controlling portion for controlling a focused state of the optical system in accordance with the measured distance information received by the receiving portion.

25 23. The two-dimensional photographing device according to claim 22, wherein the two-dimensional photographing device includes a focused state detecting portion for detecting information regarding a focused state of the optical system for the subject, and the
30 focused state of the optical system is adjusted in

accordance with the detection result of the focused state detecting portion when the three-dimensional measuring device is not attached to the two-dimensional photographing device.

5 24. A three-dimensional measuring device that is removably attached to a two-dimensional photographing device, the three-dimensional measuring device comprising:

an acquiring portion for acquiring measurement result information by measuring a distance to a subject at least
10 for one point within a photographing area of the two-dimensional photographing device; and

an outputting portion for outputting the measurement result information to the two-dimensional photographing device.

15 25. The three-dimensional measuring device according to claim 24, wherein the three-dimensional measuring device has a mode of measuring uniformly in a predetermined area and a mode of measuring one or more discrete points in the area for acquiring the measurement
20 result information.